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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/213,271	12/17/1998	MARTIN R. HANDFORTH	RO-3951	7176

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EXAMINER

TRAN, CON P

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/213,271

Applicant(s)

HANDFORTH ET AL.

Examiner

Con P. Tran

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8,10,11,13-16 and 18-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-8,10,11,13-16 and 18-23 is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 8, 2003 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hung et al. U.S. Patent 5,390,231 (hereinafter, "Hung") in view of Pistilli U.S. Patent 5,539,820 (cited by Applicant), and further in view of McMillen et al. U.S. Patent 3,590,325 (hereinafter, "McMillen").

Regarding **claim 1**, Hung teaches a protection arrangement for a line circuit (see Fig. 1, 2, and respective portions of the specification), comprising:

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current sensing means (12) for sensing current flowing through the telephone subscriber line (see col. 5, lines 20-30);

voltage sensing means (sensing circuit 12, i.e., common mode voltage, CMV) for sensing voltage across the telephone subscriber line (see col. 5, lines 65-68);

line circuit isolation means (contacts 14, relay 15) for selectively coupling the line circuit to the telephone subscriber line (see col. 5, lines 20-30);

Hung further teaches the digital control circuit (i.e., control means) 20 controls the voltage DV and the voltages TV and RV to provide a limited loop current while maintaining adequate voltage via amplifier 32 (col. 6, lines 40-50); in the event that the output of the low pass filter exceeds a predetermined threshold level stored in the digital control circuit 20, the circuit 20 sets the overcurrent flag (col. 7, lines 40-43).

Hung teaches control of the power supply instead of isolation.

Pistilli teaches (Fig. 1) a CVG 20, a switch S which is closed so that the battery voltage BV is connected to the line 22 to constitute the line drive circuit supply voltage DV (see col. 5, lines 17-22). In addition, Pistilli further teaches the line interface circuit illustrated in FIG. 4 includes diode 54, transistor 48. The transistor 48 is fully turned on, its collector current flowing through the resistor 46 reducing the gate-source voltage of the MOSFET 42 to turn off this MOSFET, so that current is no longer supplied via the line 22 to the capacitor 26 (col. 9, lines 17-42) in order to substantially eliminate current through the controlled path of the transistor (col. 3, lines 34-36).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to include within the Hung et al. a interface circuit as

taught by Pistilli in order to substantially eliminate current through the controlled path of the transistor as suggested by Pistilli in column 3, lines 34-36 for purpose of avoiding relay contact deterioration (Abstract).

It should be noted that Hung in view of Pistilli does not explicitly disclose voltage sensed by the voltage sensing means failing to exceed a voltage threshold. McMillen teaches a circuit sensing low voltage condition to control power supply voltage (col. 1, lines 26-30, lines 56-61).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to incorporate the teaching of sensing low voltage condition to control power supply voltage of McMillen with sensing excessive current threshold (steps 51 and 52, Fig. 2) of Hung in view of Pistilli for purpose of insuring that no dangerous fault currents will be permitted to flow through the circuit, as suggested by McMillen in column 1, lines 64-65.

4. **Claims 2-3** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hung et al. U.S. Patent 5,390,231 in view of Pistilli U.S. Patent 5,539,820 (cited by Applicant), in view of McMillen et al. U.S. Patent 3,590,325 (hereinafter, "McMillen"), and further in view of Chen U.S. Patent 6,288,883.

Regarding **claim 2**, Hung in view of Pistilli further in view McMillen teaches a protection arrangement for a line circuit a protection arrangement of claim 1. However,

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Hung, Pistilli, and McMillen in combination does not explicitly disclose a power supply isolation means that comprises:

a FET having a source for connecting to the power supply, a drain for connecting to the line circuit, and a gate; and

an interface circuit connected to the source and drain of the FET, having an input connected to the control means, and an output connected to the gate of the FET, the interface circuit for operating the FET in saturation mode to couple the power supply to the line circuit and for turning off the FET to decouple the power supply from line circuit.

Chen teaches a power supply isolation means that comprises (see Fig. 2, 3, and respective portions of the specification):

a FET (Q102) having a source (S) for connecting to the power supply (i.e., input 12), a drain (D) for connecting to the line circuit (i.e., output 18), and a gate (G; see col. 3, lines 11-21); and

an interface circuit (see col. 1, lines 20-26) connected to the source (S) and drain (D) of the FET (see col. 3, lines 25-31), having an input connected to the control means (C125), and an output connected to the gate of the FET, the interface circuit for operating the FET in saturation mode to couple the power supply to the line circuit and for turning off the FET to decouple the power supply from line circuit (see col. 4, lines 5-15) in order to provide over-voltage or over-current protection (see col. 2, lines 37-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the Chen teaching with Hung, Pistilli and McMillen in combination since such combination would provide over-voltage or over-current protection as suggested by Chen in col. 2, lines 37-41.

Regarding **claim 3**, Chen further teaches a protection arrangement (see Fig. 2, 3, and respective portions of the specification), wherein the interface circuit comprises:

a voltage divider having first (R125) and second (126) resistors, the first resistor (125) connected to the source (S) of the FET at one end and to the gate (G) of the FET at the other end, and the second resistor (126) connected to the gate of the FET at one end (see col. 5, lines 25-27); and

a pnp transistor (i.e., Q101, see col. 5, lines 34-38) having a base connected to ground, an emitter coupled to the controller means (C125), and a collector connected to the other end of the second resistor. It should be noted that the Chen reference discloses an npn transistor in drawings (Fig. 3). However, the reference does not explicitly specify an npn transistor in the specification.

Nevertheless, as would have been well known in the art at the time the invention was made, in both pnp and npn transistors, base current causes collector current to flow, thus those of ordinary skill in the art would be able to modify the npn transistor in the protection circuit taught by Chen reference with a pnp transistor.

Accordingly, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to modify the npn transistor in the protection circuit taught

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by Chen reference with a pnp transistor for the purpose of utilization of available components.

Allowable Subject Matter

5. **Claims 4-6** are allowed.

Regarding to **claim 4**, this claim has been amended to incorporate the allowable subject matter, which is indicated by previous Office Action, paper number 14, therefore is allowed.

Claims 5-6 are allowed by virtue of their dependency on claim 1.

6. **Claim 7-8, 10, 11, 13-15, 16, 18-22** are allowed.

Regarding to independent **claims 7, 11, and 16**, the cited prior art fails to teach or suggest the claimed limitations with the reasons set forth in the Applicant's Remarks of Amendment Under 37 C.F.R. 1.116 filed on December 8, 2003, paper number 15, pages 16-20.

Claims 8 and 10 are allowed by virtue of their dependency on claim 7.

Claims 13-15 are allowed by virtue of their dependency on claim 11.

Claims 18-23 are allowed by virtue of their dependency on claim 16.

Response to Arguments

7. Applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground of rejection.

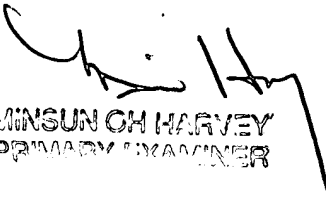
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Con P. Tran, whose telephone number is (703) 305-2341. The examiner can normally be reached on M - F (8:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Customer Service Office at telephone number (703) 306-0377.

cpt CPJ
March 17, 2004


MINSUN OH HARVEY
PRIMARY EXAMINER